$$\int_{\Omega} \left(\frac{\partial a_{ij}}{\partial x_i}\right)^2 \ dx \leq \lambda_1, \ \int_{\Omega}\left(\frac{\partial^2 a_{ij}}{\partial x_i \partial x_j}\right)^2 \ dx \leq \lambda_2, \int_{\Omega}\left(\frac{\partial^2 a_{ij}}{\partial t^2}\right)^2 \ dx \leq \lambda_3.$$

b) in Ω, b_i and $\frac{\partial b_i}{\partial x_i}$ are summable with the square

$$\int_{\Omega} b_i^2 \ dx \leq \lambda_4, \qquad \int_{\Omega}\left(\frac{\partial b_i}{\partial x_i}\right)^2 \ dx \leq \lambda_5,$$

c) The function c is summable with the square such that

$$\int_{\Omega} c^2 \ dx \leq \lambda_6,$$

d) we have $\sum\limits_{i,j=1}^{n} a_{ij} \xi_i \xi_j \geq \alpha > 0$ for $\sum\limits_{i=1}^{n} \xi_i^2 = 1$, where λ_k $(k=1,\ldots,6)$

and α are certain constants.
If under these assumptions the inequations

$$\int_{\Omega} u_y^2(0,x)\,dx \leqslant \varepsilon \qquad \text{and} \qquad \int_{\Omega} u^2(1,x)\,dx \leqslant M$$

are satisfied then there also holds the inequation

$$\int_{\Omega} u^2(t,x)\,dx \leqslant C_1 M^{C_2 \frac{t}{1}} \varepsilon^{C_2 \frac{1-t}{1}} ,$$

where the constants C_1 and C_2 depend on λ_k and α. This theorem generalizes the author's results (Doklady Akad.Nauk $\underline{106}$, no.3 (1956)) and improves the results of Landis (Doklady Akad.Nauk $\underline{107}$, no.5 (1956)).

INSTITUTION: Lomonossow-University, Moscow.

L AVRENT'YEV, M.M.

AUTHOR: LAVRENT'YEV, M.M. (Moscow)   20-2-3/50

TITLE: On the Maximum Principle for the Solutions of Strongly
            Elliptic Systems of Second Order (O printsipe maksimuma
            resheniy sil'no ellipticheskikh sistem vtorogo poryadka).

PERIODICAL: Doklady Akademii Nauk SSSR.,1957,Vol.116; Nr 2, pp.175-176(USSR)

ABSTRACT: The k-dimensional vector $u(x,t)$ is assumed to satisfy the
            strongly elliptic system

$$(1) \quad \frac{\partial^2 u}{\partial t^2} + \sum_{i=1}^{n} A_{oi} \frac{\partial^2 u}{\partial x_i \partial t} + \sum_{i,j=1}^{n} A_{ij} \frac{\partial^2 u}{\partial x_i \partial x_j} = 0$$

where x is an n-dimensional vector, A_{ij} are constant sym-
metric matrices. Let the vector u be defined in $x \in \Omega$,
$0 \leqslant t \leqslant 1$ and vanish on the boundary of Ω. Then the integral

$\int_{\Omega} u^2(x,t)dx$ attains its maximum only at the end points of the

interval $[0,1]$.
Generalized maximum principle: Let the k-dimensional vector
$u(x,t)$ satisfy in $x \in \Omega$, $0 \leqslant t \leqslant 1$ the system

CARD 1/3

On the Maximum Principle for the Solutions of Strongly
Elliptic Systems of Second Order

20-2-3/50

$$\frac{\partial^2 u}{\partial t^2} + \sum_{i=1}^{n} A_{io} \frac{\partial^2 u}{\partial t \partial x_i} + \sum_{i,j=1}^{\infty} A_{ij} \frac{\partial^2 u}{\partial x_i \partial x_j} + B_o \frac{\partial u}{\partial t} + \sum_{i=1}^{n} B_i \frac{\partial u}{\partial x_i} +$$

(2)
$$+ \; cu = 0$$

and vanish on the boundary of Ω. In $x \in \Omega$, $0 \leqslant t \leqslant 1$ it
is assumed: The matrices A are symmetric and

$$| A(x',t') - A(x'',t'') | \leqslant \lambda_1 \Big[| x'-x'' | + | t'-t'' | \Big] .$$

The matrices B and C are assumed to be summable with re-
spect to all k-dimensional varieties and to be bounded

$$\| B \| \leqslant \lambda_2 \quad , \quad \| c \| \leqslant \lambda_3$$

Let the system (2) be strongly elliptic, i.e. for arbitrary
real k-dimensional vectors $\xi, \eta_1, \dots, \eta_n$ let be

$$\xi^2 + \sum_{i=1}^{n} (A_{io} \xi, \eta_i) + \sum_{i,j=1}^{n} (A_{ij} \eta_i, \eta_j) \geqslant \alpha \Big[|\xi|^2 + \sum_{i=1}^{n} |\eta_i|^2 \Big]$$

Then there exists such an h only depending on λ, α, k and
n, that for arbitrary t_o, $0 \leqslant t_o \leqslant 1-h$ and arbitrary

CARD 2/3

On the Maximum Principle for the Solutions of Strongly   20-2-3/50
Elliptic Systems of Second Order

t, $t_0 \leqslant t \leqslant t_0 + h$ there holds the inequality:

$$\int_\Omega u^2(x,t)dx \leqslant 2 \ \max\left[\int_\Omega u^2(x,t_0)dx, \ \int_\Omega u^2(x,t_0+h)dx\right]$$

ASSOCIATION: Moscow State University im. M. V. Lomonosov (Moskovskiy
gosudarstvennyy universitet im. M. V. Lomonosova)

SUBMITTED: March 14, 1957

AVAILABLE: Library of Congress

CARD 3/3

LAVRENT'YEV, M. M. (===)

"Cauchy Problem for Elliptic Equations."

 paper submitted at International Congress Mathematicians,   Edinburgh,   14 - 21
Aug 58.

16(1)

AUTHOR: Lavrent'yev, M.M.

TITLE: On Integral Equations of the First Order

PERIODICAL: Doklady Akademii nauk SSSR,1959,Vol127,Nr 1,pp 31-33 (USSR)

SOV/20-127-1-7/65

ABSTRACT: The author considers the determination of the function φ from the equation (1) $A\varphi = f$, where A is a completely additive operator.
Let $\varphi = B\psi$, $\|\psi\| = 1$, where B is a completely additive operator, and for the function u the inequality $\|Bu\|_{L_2} \leqslant \delta(\varepsilon)$

is assumed to follow from the inequalities $\|u\|_{L_2} \leqslant 1$, $\|ABu\|_{L_2} \leqslant \varepsilon$.

If AB is positive and $\varphi_\varepsilon = B(AB + \varepsilon E)^{-1} f$, then it is

$$\|\varphi - \varphi_\varepsilon\| = \|B\omega\| \leqslant \delta(\varepsilon) ,$$

where $\omega = \varepsilon(AB + \varepsilon E)^{-1}\psi$. If AB is not positive, then the case is reduced to the previous one by considering the equation $(AB)^* A\varphi = f'$, $f' = (AB)^* f$ instead of (1).
For the calculation of φ_ε the representation

Card 1/2

On Integral Equations of the First Order   SOV/20-127-1-7/65

$$(AB + \mathcal{E}E)^{-1} = \frac{1}{\lambda + \mathcal{E}} \sum_{k=0}^{\infty} \frac{1}{(\lambda + \mathcal{E})^k} (\lambda E - AB)^k$$

is used, where $\lambda \gg \|AB\|$.
If it is known that $\|f_\alpha - f\| \leqslant \varsigma$, then it is

$$\|\varphi - \varphi_{\alpha\mathcal{E}}\| \leqslant \delta(\mathcal{E}) + \frac{\alpha}{\mathcal{E}} \|B\| ,$$

where $\varphi_{\alpha\mathcal{E}} = B (AB + \mathcal{E}E)^{-1} f_\alpha$.
Two examples are given.
There is 1 Soviet reference.

PRESENTED: March 31, 1959, by S.L. Sobolev, Academician
SUBMITTED: March 4, 1959

Card 2/2

LAVRENT'YEV, M. M.

Doc Phys±Math Sci - (diss) "Several incorrect problems in mathe-
matical physics." Novosibirsk, 1961. 14 pp; (Academy of Sciences
USSR, Siberian Division, Joint Academic Council for Physics-Mathe-
matical and Technical Sciences); 250 copies; price not given;
bibliography on pp 11-14 (43 entries); (KL, 6-61 sup, 191)

LAVRENT'EV, M. M.

"On operator equations of the first kind and certain peoblems
of potential theory"

report submitted at the Intl Conf of Mathematics, Stockholm. Sweden,
15-22 Aug 62

LAVRENT'YEV, Mikhail Mikhaylovich; ALEKSANDROVSKIY, B.M., red.;
    OVCHINNIKOVA, T.K., tekhn. red.

[Some incorrect problems in mathematical physics] O nekoto-
rykh nekorrektnykh zadachakh matematicheskoi fiziki. Novo-
sibirsk; Izd-vo Sibirskogo otd-niia Akad. nauk SSSR, 1962. 91 p.
                                                    (MIRA 16:6)
    (Boundary value problems) (Mathematical physics)

LAVRENT'YEV, M.A. (Novosibirsk); LAVRENT'YEV, M.M. (Novosibirsk)

A principle of generating a tractive force for motion. PMTF
no.4:3-9 Jl-Ag '62.   (MIRA 16:1)
            (Dynamics)   (Motion)

ACCESSION NR: AP4042778   s/0020/64/157/003/0520/0521

AUTHOR: Lavrent'yev, M. M.

TITLE: Concerning one inverse problem for the wave equation

SOURCE: AN SSSR. Doklady*, v. 157, no. 3, 1964, 520-521

TOPIC TAGS: uniqueness theorem, wave equation, Sturm Liouville differential equation, elliptic equation, hyperbolic equation

ABSTRACT: The wave equation considered is

$$n^2 \frac{\partial^2 u}{\partial t^2} = \Delta u,$$

where u = function of three variables x, y, t; n = function of x and y. A domain D_0 is specified in the x, y plane, along with a function n(x, y) > 0 which is continuous and identically equal to unity inside D_0. In addition, a family G of solutions of (1) for all

1/3

ACCESSION NR: AP4042778

$t > 0$ is specified in some domain D_1, $D_1 \cap D_0$ empty. The inverse
problem is to determine $n(x, y)$ inside D. The author proves the
following uniqueness theorem: Let D_0 and D_1 be singly-connected
bounded domains, let D_2 be likewise a singly-connected bounded do-
main not intersecting with D_0 and D_1, and let G be a set of solu-
tions of (1) satisfying the initial conditions

$$u(x, y, 0) = 0,$$
$$\frac{\partial u(x, y, 0)}{\partial t} = \delta(x - x_0, \ y - y_0),$$

where $Q(x_0, y_0)$ is any point from D_2. Then the solution of the
formulated inverse problem is unique, i.e., $n(x, y)$ is uniquely
defined inside D_0. The proof can be generalized to the case of
the wave equation in a space of any dimensionality, to the heat con-
duction equation, and to several hyperbolic and elliptic equations
of higher order. An analogous problem was treated by M. G. Kreyn
(DAN, v. 82, 669, 1959) for one dimension and is similar to the in-
verse Sturm-Liouville problem. Orig. art. has: 6 formulas.
 Presented by Academician N. N. Bogolyubov.
    2/3

ACCESSION NR: AP4042778

ASSOCIATION: Vy*chislitel'ny*y tsentr Sibirskogo otdeleniya
Akademii nauk SSSR (Computation Center of the Siberian Department,
Academy of Sciences, SSSR)

SUBMITTED: 12Feb64   ENCL: 00

SUB CODE:. MA   NR REF SOV: 001   OTHER: 000

3/3

AP3004303   S/0199/63/004/004/0837/0844

AUTHOR: Lavrent'yev, M. M.

TITLE: On one class of nonlinear integral equations

SOURCE: Sibirskiy matematicheskiy zhurnal, v. 4, no. 4, 1963, 837-844

TOPIC TAGS: nonlinear integral equation, integral operator, uniqueness theorem, inverse problem, potential theory

ABSTRACT: The integral equation

$$A\phi = f \qquad (1)$$

where ϕ and f are continuous functions of the variable x on the interval $[0,1]$ and the operator A can be represented in the form

$$A\phi = \int_0^1 \int_0^\phi P(x,\xi,\eta)\,d\eta\,d\xi, \qquad (2)$$

where $P(x,\xi,\eta)$ is a continuous nonnegative function is studied. The
Cord 1/2

AP3004303·

theorem of the uniqueness of the solution of equation (1) is formulated
for one class of operators (2) in terms of a set of conditions which
the integral operator A must satisfy. The proof of the theorem is
given for this particular class of operators. It is noted that in-
tegral operators encountered in the inverse problem of the theory of
potentials satisfy this type of condition. As an example the inverse
problem of the theory of Newtonian potentials formulated by P. S.
Novikov is presented. Orig. art. has: 20 formulas.

ASSOCIATION: none

SUBMITTED: 28Mar62   DATE ACQ: 15Aug63   ENCL: 00

SUB CODE: MM   NO REF SOV: 002   OTHER: 000

Card 2/2

L 23853-65   EWT(d)   Pg-4   IJP(c)
ACCESSION NR: AP5004188   S/0020/65/160/001/0032/0035

AUTHOR: Lavrent'yev, M. M.

TITLE: On one class of inverse problems for differential equations

SOURCE: AN SSSR, Doklady, v. 160, no. 1, 1965, 32-35

TOPIC TAGS: inverse problem, linear differential equation, first
kind integral equation, solution uniqueness

ABSTRACT: A study is made of one class of inverse problems (deter-
mination of coefficients from certain characteristics of their solu-
tions) for differential equations of the form

$$P_1\left(\frac{\partial}{\partial x_j}\right) u(x, y) = P_3\left(\frac{\partial}{\partial y_j}\right) P_2\left(\frac{\partial}{\partial x_j}\right) u(x, y), \qquad (1)$$

where x and y are vectors with components $(x_1, \ldots, x_n)$, $(y_1, \ldots, y_n)$; P_1, P_2, and P_3 are polynomials with coefficients continuously
dependent on x. Under the assumptions that D_0 and D_1 are certain
bounded domains whose intersection is an empty set, the coefficients
of polynomials P_1 and P_2 are defined on the entire space x, the co-

Card 1/3

L 23853-65
ACCESSION NR: AP5004188

efficients of the polynomial P_3 are defined everywhere outside D_0, and that there exists in the domain D_1 a family of solutions $U(x, y, \xi)$ (ξ is a parameter) of (1) which satisfy certain conditions, the coefficients of the polynomial P_3 are sought in the domain D_0. In order to determine the coefficients of the polynomial P_3, a system of linear integral equations of the first kind is derived. A detailed analysis of this system is carried out for the case when the initial differential equation is of the form

$$\Delta_z^\alpha u(x, y) = \sum_1^p a_j(x) \frac{\partial^j}{\partial y^j} u(x, y) \qquad (2)$$

where y is a scalar and α and β are integers. When the family of solutions $U(x, y, \xi)$ of (2) is such that the set of potentials $V_0(x, \xi)$ is dense in the space of all harmonic functions which are regular in the domain D_{0n} (a certain extension of the domain D_0), then it is proved that the solution of the inverse problem for (2) is unique in the class of continuous functions $a_k(x)$ ($k = 1, \ldots, \beta$). Orig. art. has: 9 formulas.

[LK]

Card 2/3

L 23853-65
ACCESSION NR: AP5004188

ASSOCIATION: Vychislitel'nyy tsentr Siborskokogo otdeleniya Akademii nauk SSSR (Computing Center of the Siberian Branch, Academy of Sciences SSSR)

SUBMITTED: 19May64   ENCL: 00   SUB CODE: MA

NO REF SOV: 000   OTHER: 000   ATD PRESS:3178

Card 3/3

LAVRENT'YEV, M.O.

One class of quasi-conformal mappings. Zbir.prats' Inst.mat.AN URSR
no.9:7-54 '48.   (MIRA 9:9)
         (Surfaces, Representation of)

LAVRENT'EV, M. P. (Krasnoyarsk Veterinary Scientific Research Experimental Station [NIVS.]

"Diagnosis of Trichomoniasis in Cattle."
Veterinariya vol. 38, no. 11, November 1961, p. 28

LAVRENT'YEV, M. V.

LAVRENT'YEV, M. V. — "Investigation of the Conditions of Movement of a
    Stream along an Inclined River Bed Beneath a Bridge." Min Higher
    Education Ukrainian SSR. Kiev Automobile and Road Inst. Kiev,
    1955. (Dissertation for the Degree of Candidate in Technical
    Sciences)

                    No 1
SO: Knizhnaya Letopis', 1956, 102-122, 124

LAVRENT'YEV, M.V., dots.,kand.tekhn.nauk

Effect of bottom slant of the channel under a bridge on the discharge
capacity of the structure. Izv.vys.ucheb.zav.; energ. no.8:117-120
Ag '58.   (MIRA 11:11)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk.
                    (Hydraulics)

LAVRENT'YEV, M.V., aspirant

> Model of a railroad section in the memory device of the calculating
> machine. Nauch.trudy KHIIT no.55:18-27 '62.   (MIRA 16:10)

SHVARTSER, Boris Vol'fovich; DZEVUL'SKIY, V.A., kand. tekhn.
    nauk, dots., red.; LAVRENT'YEV, M.V., kand. tekhn. nauk,
    dots., red.; MIRONETS, Ye.M., red.

    [Collection of problems on the fundamentals of heat
    engineering and hydraulics] Sbornik zadach po osnovam
    teplotekhniki i gidravliki. Kiev, Izd-vo Kievskogo univ.,
    1965. 81 p.   (MIRA 18:4)

LAVRENT'YEV, M.Y., assistant

       Computer for calculating the transposition of wires. Avtom., telem.
       i sviaz' 4 no.10:47-48 0 '60.   (MIRA 13:10)

       1. Tomskiy elektromekhanicheskiy institut inzhenerov zheleznodorozhnogo
       transporta.
             (United States--Electric lines--Overhead)

RIO, B. del, kand.tekhn.nauk; LAVRENT'YEV, M.V., inzh.

Using computers in telemechanical systems. Mekh.i avtom.proizv.
16 no.7:48-54 Jl '62.   (MIRA 15:8)
    (Electronic calculating machines)   (Remote control)

LAVRENT'YEV, M.V.

Optimum solution of a problem on train traffic control in a
railroad sector. Trudy OMIIT 36:36-45 '62.   (MIRA 17:4)

LAVRENT'YEV, N.

Press used in molding capron. Mashinostroitel' no.8:37 Ag '61.
(MIRA 14:7)

(Power presses)   (Nylon)

GLAZUNOV, I.F.; LAVRENT'YEV, N.G.; MALINOVSKIY, N.A.; RYASNOY, Ye.A.;
    PREDKO, I.N., gornyy tekhnik

    Role of the section head and the mine foreman in mining
    operations. Gor. zhur. no. 12:14-16 D '65.   (MIRA 18:12)

    1. Glavnyy inzhener Zyryanovskogo rudnika (for Glazunov). 2. Na-
    chal'nik uchastka Zyryanovskogo rudnika (for Lavrent'yev).
    3. Nachal'nik otdela truda i zarabotnoy platy Zyryanovskogo
    rudnika (for Malinovskiy). 4. Pomoshchnik glavnogo inzhenera
    po organizatsii truda rudnika imeni 40-letiya VLKSM Leninogorskogo
    polimetallicheskogo kombinata (for Ryasnoy).

ZAKHARENKO, S.V.; LAVRENT'YEV, N.I.; MILEVSKIY, Ye.I.

Effect of bacterial cell substances on the biological activity
of the bacteriophage. Mikrobiologiia 31 no.4:623-627 Jl-Ag '62.
(MIRA 18:3)

1. Voyenno-meditsinskaya ordena Lenina akademiya imeni Kirova,
Leningrad.

LAVRENT'YEV, N.I., podpolkovnik meditsinskoy sluzhby

Changes in the microflora of burned areas. Voen.med.zhur.
no.5:54-57 My '59.   (MIRA 12:8)
            (BURNS, microbiology
                (Rus))

MILEVSKIY, Ye.I., mayor meditsinskoy sluzhby, kand.med.nauk; LAVRENT'YEV,
    N.I., podpolkovnik meditsinskoy sluzhby; ZAKHARENKO, S.V.

Conditions for the preservation of bacteriophage.   Voen.-med. zhur.
no.8:77 Ag '61.   (MIRA 15:2)
                        (BACTERIOPHAGE)

ZAKHARENKO, S.V.; LAVRENT'YEV, N.I.; MILEVSKIY, Ye.I.; PASHININ, P.M.

Study of the effect of chloramphenicol on bacteriophage.
Antibiotiki 7 no.4:309-311 Ap '62.   (MIRA 15:3)

1. Kafedra mikrobiologii i biokhimii Voyenno-meditsinskoy
ordena Lenina akademii imeni S.M. Kirova.
            (CHLOROMYCETIN)   (BACTERIOPHAGE)

MIKHAYLOV, I. F.; LAVRENT'YEV, N. I.

Stainability of para-agglutinating strains of Escherichia coli
with fluorescent sera of different specificity. Zhur. mikrobiol.,
epid. i immun. 32 no.8:74-78 Ag '61.   (MIRA 15:7)

1. Iz kafedry mikrobiologii Voyenno-meditsinskoy ordena Lenina
akademii imeni Kirova.

(ESCHERICHIA COLI)   (SERUM)

ZAKHARENKO, S.V.; MILEVSKIY, Ye.I.; LAVRENT'YEV, N.I.

Effect of polysaccharides of Bacillus mucilaginosus on bacterio-
phage activity. Mikrobiologiia 31 no.6:1007-1010 N-D '62.

(MIRA 16:3)

1. Voyenno-meditsinskaya ordena Lenina akademiya imeni S.M. Kirova,
Leningrad.
          (POLYSACCHARIDES)   (BACTERIOPHAGE)

LAVRENT'YEV, N.P., inzh.

A new method for locating damages in power cables. Energetik
10 no.11:24-25 N '62.   (MIRA 15:12)
                     (Electric cables—Testing)

LAVRENT'YEV, N.V., assistent

Distributor of channel pulses using passive elements in the impulse multiplexing equipment of radio relay lines. Sbor. trud. LIIZHT no.224:121-132 '64.   (MIRA 18:9)

LAVRENT'YEV, N.V., assistent

Choice of a protective interval for time-division multiplexed
radio relay systems. Sbor. trud. LIIZHT no.186 Elektrosviaz' i
radiotekhnika:108-112 '62.   (MIRA 16:7)

(Radio relay systems)

L 33402-66   EWT(d)/FSS-2

AUTHOR: Lavrent'yev, N. V.

TITLE: Channel-pulse distributor designed with massive elements intended for the pulse-multiplexing equipment in radio relay lines

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz', Abs. 10B313

REF SOURCE: Sb. tr. Leningr. in-t inzh. zh.-d. transp., vyp. 224, 1964, 121-132

TOPIC TAGS: radio relay line, pulse multiplexing, radio communication

ABSTRACT: The problem of choosing the most reliable configuration of channel-pulse distributors is considered. Two methods of pulse distribution are studied. The most reliable is that distributor configuration in which each channel has its individual delay device independent of other channel delays. A distributor circuit is suggested which uses switching inductances designed with nonlinear-magnetization cores. The circuit of one distributor cell using the switching inductances is described. The processes transpiring in three sections of the complete operating cycle are analyzed in detail; these sections are: charging capacitance section, recharging capacitance section, and output-pulse shaping section. Formulas for calculating load resistance and delay time are developed. Bibliography 6 titles. I. L. [Translation of abstract]

SUB CODE: 17, 09

Card 1/1   JS   UDC: 621.396.4

LAVRENT'YEV, O.A. [Lavrent'iev, O.O.]

    Electrostatic confinement of a plasma. Part 1.   Ukr. fiz. zhur.
    8 no.4:440-445 Ap '63.   (MIRA 16:8)

    1. Fiziko-tekhnicheskiy institut AN UkrSSR, Khar'kov.
             (Plasma (Ionized gases))
              (Electric fields)

LAVRENT'YEV, O.A. [Lavrent'iev, O.O.]

Reflection of a plasma by a magnetic field layer. Part 2.
Ukr. fiz. zhur. 8 no.4:446-451 Ap '63.   (MIRA 16:8)

1. Fiziko-tekhnicheskiy institut AN UkrSSR, Khar'kov.
        (Plasma (Ionized gases))
            (Magnetic fields)

ACCESSION NR: AT4025313   S/0000/63/000/000/0233/0236

AUTHORS: Lavrent'yev, O. A.; Nemashkalo, B. A.; Ovcharenko, L. I.;
Safronov, B. G.; Sidorkin, V. A.

TITLE: Measurement of potential well in a plasma by means of the
time of flight of charged particles

SOURCE: Diagnostika plazmy* (Plasma diagnostics); sb. statey.
Moscow, Gosatomizdat, 1963, 233-236

TOPIC TAGS: plasma research, ionized plasma, plasma source, plasma
injection, plasma confinement

ABSTRACT: A method is proposed for measuring the potential of a
plasma during the time of flight of a beam of charged particles
through the plasma. In the case of a dense plasma, when the Debye-
screening radius is small and the electric fields in the plasma are
concentrated in a narrow boundary layer, methods using beams of

Card   1/4

ACCESSION NR: AT4025313

charge particles entail experimental difficulties. The operation of
the experimental setup is such that after the injection pulse is
completed, the potential of the grid of the plasma gun becomes
lower than the cathode potential, and the electrons are locked in a
trap. The plasma is produced as a result of ionization of the re-
sidual gas by the electrons. The potential well is measured by
passing a modulated beam of krypton ions through the plasma. The
time dependence of the plasma potential is determined from oscillo-
grams which slow the phase shift of the ions in the beam. Orig.
art. has: 4 figures and 6 formulas.

ASSOCIATION: None

SUBMITTED: 19Oct63   DATE ACQ: 16Apr64   ENCL: 02

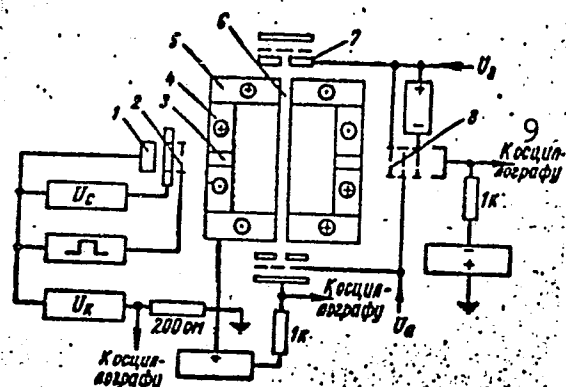SUB CODE: ME   NR REF SOV: 001   OTHER: 001

Card   2/4

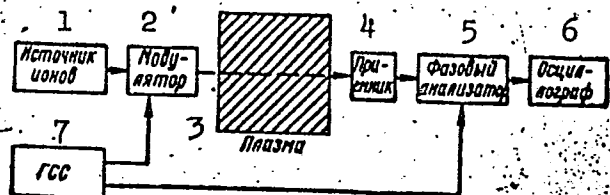ACCESSION NR: AT4025313 ENCLOSURE: 01

Diagram of experimental set-up:

1 - cathode, 2 - grid,
3 - axial openings,
4 - solenoid, 5 - solenoid,
6 - annular slots
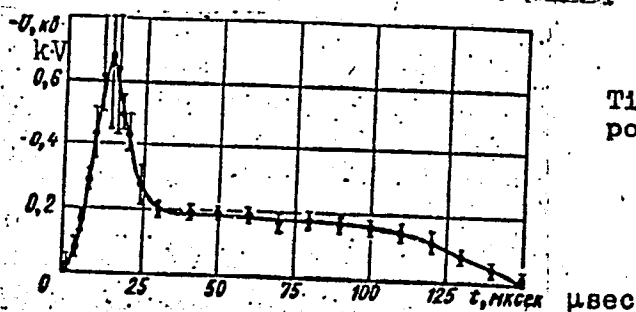7 - electrostatic mirror
8 - grid

Card 3/4

ACCESSION NR: AT4025313   ENCLOSURE: 02

Block diagram of potential-well measurement

1 - ion source, 2 - modulator
3 - plasma, 4 - receiver,
5 - phase analyzer,
6 - oscilloscope,
7 - standard signal generator

Time dependence of the
potential

kV

μsec

Card 4/4

ACC NR: AP7008906   SOURCE CODE: UR/0185/66/011/009/0982/0989

AUTHOR: Lavrent'yev, O. A.; Ovcharenko, L. I.; Safronov, B. H. Sydorkin, V. O.

ORG: Physics-Engineering Institute, Ukrainian Academy of Sciences, Kharkov
(Fizyko-tekhnichnyy instytut AN UkrSSR)

TITLE: Electron injection into an electromagnetic trap

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 11, no. 9, 1966, 982-989

TOPIC TAGS: electron beam, electron capture

SUB CODE: 20

ABSTRACT: The authors investigated the conditions of low-density electron beam
capture in an electromagnetic trap. The position and dimensions of the cathode
are determined so as to secure the most effective injection of electrons. The
life of the electrons in the trap is measured and compared for the cases of
magnetic and electromagnetic confinement of the plasma electrons. The mean
neutral atom ionization and excitation energy loss by the electron is deter-
mined. The coefficient of magnetic field diffusion of the electrons as a re-
sult of collision with neutral atoms is measured. It is shown that with a
magnetic field strength exceeding a certain critical value the escape of ele-
trons from the trap is conditioned by diffusion processes only. Orig. art. has:
13 figures, 17 formulas and 1 table. /JPRS: 38,417/

Card 1/1

LAVRENTYEV, O.O.

AID Nr. 995-14   21 June

CONFINEMENT OF PLASMA BY AN ELECTROSTATIC FIELD (USSR)

In connection with the use of an electrostatic field as a screen for preventing
convective exchange of energy between a plasma and its surroundings, the
distribution of the potential and density of particles in the drift space for the
stationary case has been investigated. Plane and spherical Langmuir problems
for bipolar current with an arbitrary velocity distribution of particles was
solved for two cases: 1) when the particle beam is monoenergetic and 2) when
the energy distribution of particles in the beam is parabolic. The conditions
for the existence of a potential well in a drift space were found, and the relation-
ship between the density of ions confined in the potential well and the magnitude
of the electron beam reflected by the external electrostatic fields was determined.
                                                                        [JA]

Card 1/1

AID Nr. 995-12   21 June

REFLECTION OF PLASMA BY A LAYER OF MAGNETIC FIELD (USSR)

Lavrentyev, O. O. Ukrayins'kyy fizichnyy zhurnal, v. 8, no. 4, Apr 1963,
446-451.   S/185/63/008/004/005/015

The conditions under which the confinement of high-temperature plasma by a
system of external electric and magnetic fields is possible have been investi-
gated. The following values were determined: the critical magnetic field for
relativistic electrons; the diffusion of electrons through a magnetic field; the
maximum distance which the electrons can move away from the center of the gap;
the width of the gap; the maximum possible potential created by the space
charge of passing electrons; and the depth of the potential well required for
confinement of a plasma ionic component in the well.   [JA]

Card 1/1

AID Nr. 993-9   19 June

ENERGY AND DENSITY OF IONS IN AN ELECTROMAGNETIC TRAP (USSR)

Lavrent'vev, O. O., L. I. Ovcharenko, B. G. Safronov, V. O. Sidorkin, and
B. A. Nemashkalo. Ukrayins'kyy fizichnyy zhurnal, v. 8, nr. 4, Apr 1963,
452-459.   S/185/63/0   /004/006/015

The conditions for the confinement of low-density plasma in an electromag-
netic trap have been investigated. The density and lifetime of electrons, the
density and energy of ions, and the magnitude of the potential w e l l w e r e
measured. The density of electrons in the trap at the moment of space-
charge formation was determined by the injection current of electrons. The
density of electrons after termination of the injection was determined from
the electron emission occurring while the electrostatic trap was open, and
the mean energy of the emerging ions, by the retarded-potential m e t h o d.
The energy of the potential well was determined by the passage time of krypton
ions through the inner region of the trap. The actual ion energy is the sum

Card 1/2

AID Nr. 993-9   19 June

ENERGY AND DENSITY OF IONS [Cont'd]   8/185/63/008/004/006/015

of the mean energy of the ions and the energy of the potential well. The ionic density was determined by the total number of ions emerging from all magnetic gaps and was of the order of $10^{10}/cm^3$. The results of the analysis are shown in graphs of the following: electron injection current versus time, electron density in the trap versus magnetic-field intensity, ion density versus injection-pulse duration, ion density versus magnetic field intensity, and mean energy of ions emerging from the trap versus 1) the energy of electrons and 2) the energy distribution of ions emerging from the trap.   [JA]

Card 2/2

L 24048-66   EWT(l)/EWT(m)/T   IJP(c)   GS/AT/GW

ACC NR: AT6008846   SOURCE CODE: UR/0000/65/000/000/0086/0088

AUTHOR: Lavrent'yev, O. A.; Nemashkalo, B. A.; Ovcharenko, L. I.; Safronov, B. G.;
Sidorkin, V. A.

ORG: none

TITLE: Measuring the energy of recharged particles in an electromagnetic trap

SOURCE: AN UkrSSR. Magnitnyye lovushki (Magnetic traps). Kiev, Naukova dumka, 1965,
86-88

TOPIC TAGS: hydrogen plasma, charged particle, magnetic trap, charge exchange,
ionized plasma, ion energy

ABSTRACT: The authors measure the energy of a stream of recharged particles emerging
from the end aperture in an electromagnetic trap. A diagram of the experimental equip-
ment is given together with a brief description. Mass analysis of the stream of re-
charged particles emerging from the trap showed that it consists almost entirely of
atomic hydrogen. Curves are given showing the energy distribution of ionized atoms
with a residual gas pressure in the trap of $2 \cdot 10^{-5}$ mm Hg and injected electron energies
of 2 kev and 2.8 kev. The density of the energy distribution for the recharged parti-
cles is related to the density of the energy distribution for the stream of ions in
the trap by the formula

$$N_0(U) = \sigma_{10}(U) n_0 R N_i(U),$$

Card 1/2

L 24048-66

ACC NR: AT6008846 O

where σ_{i0} is the charge exchange cross section; n_0 is the density of the residual gas; R is the radius of the region occupied by the plasma. This relationship may be used to establish the energy distribution of the stream of ions circulating in the trap from the distribution of neutral ions. By narrowing the time interval for registration of the recharged particles, the variation in the intensity of a stream of ionized atoms of a given energy may be plotted as a function of time, which means that the same may be done for the intensity of ions of a given energy in the trap. It is shown that there is a hot plasma with an average ion energy of the order of 400 ev in an electromagnetic trap when the injected electrons have an energy of the order of 2 kev. The decay time after the injection pulse is 50-80 μsec which agrees with the previously measured lifetime for hot electrons in this trap. A comparison of the lifetimes for ions with various energies shows large losses of low energy ions. This is apparently due to an increase in the cross section of resonance charge exchange for hydrogen ions at low energies. Orig. art. has: 3 figures.

SUB CODE: 20/   SUBM DATE: 20Oct65/   ORIG REF: 003/   OTH REF: 000

Card 2/2

√ P A ?

LAVRENT'EV, F.N., Cand. of Vet. Sciences
Uzbek Scientific Research Veterinary Institute
    "N uttallio-carriage of horses."
SO: Vet. 26 (4) 1949, p. 26

LAVRENT'YEV, P. A.   PA 66/49T54

USSR/Medicine - Horses, Diseases   Apr 49
                Parasites, in Animals

"Equine Nuttallia Carriers," P. A. Lavrent'yev,
Cand Vet Sci, Uzbek Sci Res Vet Inst, 1 p

"Vet" No 6

Several microscopic examinations of blood
smears are necessary to distinguish Nuttallia
in parasite carriers. Absence of accumulated
parasitic reaction, and changes in the blood
picture and temperature are ordinary symptoms
observed in Nuttallia carriers.

                                    66/49T54

LAVRENT'EV, P. A., Cand. Vet. Sci.
    "Chemotherapy of piroplasmosis and francaiellasis"
SO: Veterinariia 27 (7), 1950, p. 27

LEVRENT'EV, P. A., (Cand. of Vet. Sci.); PAVLOVSKAIA, M. D.; BAITERIAKOV, B.M.
    "Camp maintainance of cattle as a measure of prophylaxis of
    theileriasis.

SO: Veterinariia 28(3), 1951, p. 33.

Name: LAVRENT'YEV, Petr Andreyevich

Dissertation: Epizootology and experiment in the
elimination of Su-auru of agr animals
in the Kara-Kalpak Autonomous SSR

@
Tashkent

U₃ SS R   Degree: Doc Vet Sci

Affiliation: Uzbek Sci Res Vet Inst

Defense Date, Place: 11Apr 56, Council of the All-Union
Inst of Experimental Vet Medicine

Certification Date: 26 May 56

Source: BMVO 4/57

LAVRENT'YEV, P.A., kandidat veterinarnykh nauk.

Treatment of theileriosis in cattle with haemosporidin and "ASD-DF2".
Veterinariia 33 no.8:25-27 Ag '56.   (MLRA 9:9)

1.Uzbekskiy nauchno-issledovatel'skiy veterinarnyy institut.
(Theileriasis) (Veterinary materia medica and pharmacy)

USSR/Diseases of Farm Animals - Diseases Caused by Protozoa.   R-3

Abs Jour   : Ref Zhur - Biol., No 10, 1958, 45424

Author   : Lavrent'yev, P.A.
Inst   :
Title   : The Prophylaxis of Hemoparasitogenic Diseases of Cattle in
              Uzbekistan.

Orig Pub   : Sots. s. kh. Uzbekistana, 1957, No 3, 36-40

Abstract   : No abstract.

Card 1/1

- 20 -

USSR / Diseases of Farm Animals. Diseases Caused by   R
        Protozoa

Abs Jour: Ref Zhur-Biologiya, No 16, 1958, 74216

Author   : Lavrent'yev, P. A.

Inst   : All-Union Institute of Experimental Veterinary
           Medicine

Title   : Experiment in Control of Trypanosomosis (Su-Aura)
           in Horses in the Kara-Kalpakskaya ASSR

Orig Pub: Tr. Vses. in-ta eksperim. veterinarii, 1957,
          21, 329-339

Abstract: No abstract.

Card 1/1

LAVRENT'YEV, P.A., doktor vet. nauk

Gamma globulin in specific prophylaxis and therapy for theileriasis
in cattle [with summary in English]. Veterinariia 35 no.3:31-33
Mr. '58.   (MIRA 11:3)

1. Uzbekskiy nauchno-issledovatel'skiy veterinarnyy institut.
        (Theileriasis) (Gamma globulin)

LAVRENT'YEV, P.A., doktor veterinarnykh nauk

Use of berenil in Hemosporidia infections of cattle. Veterinariia
37 no.8:21-22 Ag '60.   (MIRA 15:4)

1. Uzbekskiy nauchno-issledovatel'skiy veterinarnyy institut.
    (Hemosporidia) (Cattle--Diseases and pests) (Berenil)

LAVRENT'YEV, P.A., doktor veterin. nauk

Extermination of the preimaginal stages of biting midges and mosquitoes in their natural biotopes with chlorophos preparations. Veterinariia 39 no.8:58-60 Ag '62.   (MIRA 17:12)

1. Kazanskiy veterinaryy institut.

LAVRENT'YEV, P. A. (Doctor of Veterinary Sciences, Kazan' Veterinary Institute).

"Eradication of the pre-imaginal stages of sandflies and mosquitos in their natural biotopes with chlorophos pteparations"

Veterinariya, vol. 39, no. 8, August 1962, p. 58

LAVRENT'YEV, P.A., prof.

Use of chlorophos for controlling ticks and bloodsucking insects.
Veterinariia 41 no.5:101-02 My '64.   (MIRA 18:3)

1. Kazanskiy veterinarnyy institut.

LAVRENT'YEV, P.A., prof.; KOZLOV, Ye.M., mladshiy nauchnyy sotrudnik;
GVOZDKOVA, N.A., starshiy laborant

Prolongation of the insecticidal action of chlorophos. Veterinar'ia
41 no.8:90-92 Ag '64.   (MIRA 18:4)

1. Kazanskiy veterinarnyy institut.

LAVRENT'YEV, P.A.; SAL'NIKOV, V.G.; ANISIN, S.D.

Use of bacteria for the extermination of mosquitoes.
Veterinariia 42 no.8:107-109 Ag '65.   (MIRA 18:11)

1. Kazanskiy veterinarnyy institut.

L 23158-66   EWT(1)/T   JK

ACC NR: AP5023737 (A)   SOURCE CODE: UR/0346/65/000/008/0107/0108

AUTHOR: Lavrent'yev, P. A.; Sal'nikov, V. G.; Anisin, S. D.

ORG: Kazan Veterinary Institute (Kazanskiy veterinarnyy institut)

TITLE: Use of bacteria for mosquito control

SOURCE: Veterinariya, no. 8, 1965, 107-108

TOPIC TAGS: insecticide, bacteria, entomology

ABSTRACT: With the growing resistance of bloodsucking insects to various chemical insecticides, the entomopathogenic effect of bacteria cultures on mosquito larva was investigated as a possible biological control method. In a series of experiments the effects of three spore cultures (Bac. thuringiensis berliner, Bac. dendrolimus Talalaev, and Bac. cereus var. galleriae Isakova), one bacterial preparation entobakterin-3 (based on Bac. cereus var. galleriae), and two nonspore cultures (Bact. prodigiosum and Pseudomonas pyocyaneum) on the larva of Aedes, Culex and Anopheles mosquitoes were studied with different concentrations of bacteria cultures per square centimeter of water surfaces and with water temperatures ranging from 16 to 28°. Findings show that under laboratory and natural conditions the three spore bacterial

UDC: 619:614.449.57

Card 1/2

L 23158-66

ACC NR: AP5023737

cultures and the bacterial preparation killed a high percentage of Aedes, Culex, and Anopheles larva at a water temperature of 24°. At lower water temperatures, the pathogenic effect of these bacterial cultures is reduced and can be completely absent. The nonspore bacterial cultures did not display any pathogenic effect on the mosquito larva under laboratory conditions and consequently were not tested under natural conditions. No conclusions are drawn at this time. Orig. art. has: None.

SUB CODE: 06/ SUBM DATE: none.

Card 2/2 PB

LAVRENT'YEV, P. F.

"Determination of the Norm of Yearly Runoff in the Case of Incom-plete
Cycle of Observations"
  Vestnik AN KazSSR, No 9, 1954, 113-115

     For mountainous regions of irrigated farming, where often the data
on runoff exists only for the spring-summer ("vegetational" period, the
author proposes to determine the norm of yearly runoff by utilizing a
sufficiently close connection between spring-summer and winter runoff.
This method was developed and used to study problems of runoff from the
northern slopes of Dzhungar Alatau. Floods caused by thawing of snow in
mountains encompass the period April-September and amount to an average
of 70% of the yearly runoff. Fluctuations in discharges in the high-water
period (remaining part of the year) are insignificant. Runoff of high-
water period is formulated mainly by taking account of underground supply.
(RZhGeol, No 9, 1955)

SO: Sum-No 845, 7 Mar 56

LAVRENT'YEV, P.F., kandidat tekhnicheskikh nauk.

Approximate evaluation of the variability in the yearly river
discharge from the northern slope of the Dzungarian Ala-Tau.
Vest.AN Kazakh.SSR 12 no.8:87-92 Ag '56.   (MLRA 9:12)

   (Dzungarian Ala-Tau--Runoff)

LAVRENTYEV, P. F.

"Trypanoaomiasis in Horses and Methods of their Control (doucine and Su-auru) in the Uzbek SSR."

Report submitted at Fourth International Regional Conference of Asian countries on Parasitic Diseases in Animals, 31 May to 7 June 1958, Alma Ata, Kazakh SSR.

Dr. Vet. Sci., Hd, Lab. of Uzbek Res. Vet Inst. of Protozoology, Tashkent USSR

LAVRENT'YEV, P.F.

Mean annual distribution of river discharges on the northern slope
of the Dzungarian Ala-Tau. Vest. AN Kazakh. SSR 14 no.7:62-73 Jl '58.
(MIRA 11:9)

(Dzungarian Ala-Tau--Rivers)

LHVKENT'7EV, P.F.

AUTHOR: Lavrent'yev, P.F.   12-90-2-10/30

TITLE: Recent Glaciation of the Dzhungarian Alatau (Sovremennoye
                 oledeneniye Dzhungarskogo Alatau)

PERIODICAL: Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva, 1958,
                 Vol 90, Nr 2, pp 166-170 (USSR)

ABSTRACT: Existing works on recent glaciation in the Dzhungarian Alatau
                 contain general and contradictory information. In order to
                 investigate the regularity of the water effluence from gla-
                 ciers and to bring about methods for the estimation of pro-
                 spective quantities of water supply, it is necessary to deter-
                 mine the extent of glaciers over the entire area and on various
                 sections. This can be effected with the aid of cartography
                 and by comparing planimetric computation results. According
                 to planimetric computations, shown in table 1, it appears that
                 the glacier surface of the Dzhungarian Alatau in 1093 sq km,
                 exceeding considerably that of adjacent mountain areas. This
                 explains the higher water supply, in particular that on the
                 northern slope. There are 2 tables, 1 map and 18 Soviet
                 references.

AVAILABLE: Library of Congress
Card 1/1

                 1. Glaciers-Water determination   2. Cartography

LAVRENT'YEV, P.P.

Approximate estimation of the discharge of suspended sediments by
rivers flowing through the peneplain of central Kazakhstan. Trudy
KazNIGMI no.11:86-89 '59.   (MIRA 13:6)
              (Kazakhstan--Hydrology)

LAVRENT'YEV, P.F.; LAVERNT'YEVA, L.D.

Effect of the rate of stream flow on annual distribution of
runoff. Trudy KazNIGMI   no.12:64-72 '59.

(MIRA 13:5)

(Dzungarian Ala-Tau--Runoff)

LAVRENT'YEV, P.F.

Normal annual runoff and its distribution over the northern slope
of the Dzungarian Ala-Tau. Sbor. rab. po gidrol. no.1:32-42 '59.
(MIRA 15:2)

1. Kazakhskiy nauchno-issledovatel'skiy gidrometeorologicheskiy
institut.

(Dzungarian Ala-Tau--Runoff)

LAVRENT'YEV, P.F.; SOSEDOV, I.S.

Vertical zonality of the sources of runoff for rivers of high-mountain regions. Sbor. rab. po gidrol. no.1:43-47 '59.
(MIRA 15:2)

1. Kazakhskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut (for Lavrent'yev). 2. Institut energetiki AN Kazakhskoy SSR (for Sosedov).
(Dzungarian Ala-Tau—Runoff)

LAVRENT'YEV, P.F.

       Surface feeding of Lake Balkhash. Trudy Kaz.NIGMI no.6:101-102
       '61.   (MIRA 15:5)
           (Balkhash Lake region—Runoff)

LAVRENT'YEV, P.F.; SOSEDOV, I.S.

Altitude water gauge observations on Lake Balkhash. Trudy Kaz.
NIGMI no.16:109-113 '61.   (MIRA 15:5)
(Balkhash Lake--Hydrography)

LAVRENT'YEV, P.F.; GOLUBTSOV, V.V.; YURINA, Ye.G.

Mean runoff and its variations in the lake basins of the
Balkhash-Alakul' trough. Trudy KazNIGMI no.18:3-28 '63.

(MIRA 17:4)

LAVRENT'YEV, P.F.; RYBKINA, M.P.

Preliminary evaluation of surface water resources in Karaganda
Province. Trudy KazNIGMI no.18:35-41 '63.   (MIRA 17:4)

LAVRENT'YEV, P.F.; GOLUBTSOV, V.V.; PAKALN, E.V.

Distribution of annual precipitation in the watersheds of the
lakes in the Balkhash-Alakul' Depression. Trudy KazNIGMI no.17:
3-18 '62   (MIRA 18:2)

LAVRENT'YEV, P.F.; LAVRENT'YEVA, L.D.

Water and water-power resources of the rivers in South Kazakhstan.
Trudy Otd. geog. AN Kazakh. SSR no.11:115-134 '65.
(MIRA 18:8)

LAVRENT'YEV, S.

DOMRIN, Yu.; LAVRENT'YEV, S., inzh.

Technical conference of cooperative societies of disabled workers.
Prom.koop no.10:24 O '57.   (MIRA 10:12)

1.Starshiy inzhener kabineta proizvodstvenno-tekhnicheskoy
propagandy kul'tbazy oblpromsoveta (for Domrin).
(Moscow Province--Vocational rehabilitation--Congresses)

L H L A L A I Y L L , S .

USSR/Chemical Technology -- Chemical Products and Their Application. Silicates.
Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1733

Author: Tseluyko, M., and Lavrent'yev, S.

Institution: None

Title: Blast-Furnace Slag in Refractory Concretes

Original
Periodical: Stroit. materialy, izdeliya, i konstruktsii, 1956, No 6, 20-21

Abstract: An investigation of the refractoriness of the following types of
blast-furnace slags (BFS) has been made: fused slag, porous slag,
and crystalline slag as well as granite and fireclay grog, for com-
parison purposes. The strength of BFS is increased by firing at
temperatures up to 900°. This can be explained by the crystalliza-
tion of the glass in the slag and of the microcrystalline substances
in the slag and by the increase in the cohesiveness of the fired
slag. After 5 and 10 firing cycles at 900°, the strength of con-
crete prepared BFS falls almost to the same value as that of

Card 1/2

USSR/Chemical Technology -- Chemical Products and Their Application. Silicates.
                           Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1733

    Abstract: concrete prepared from fireclay grog. Refractory concretes for
            service up to 900° at the present time are produced only from BFS.
            The composition of concrete of Grade 100 and Grade 140 is as follows
            (in parts per volume): Grade 400 portland cement 1.0, finely ground
            granulated slag 0.4, BFS of -5 mm 1.8-2.0, BFS of 5-40 mm 2-2.4.

Card 2/2

LAVRENT'YEV, S., inzh.; POSYADA, Yu., inzh.

New convex slabs for hipped roofs.   Stroi.i arkhit. 8 no.6:
32-3 of cover Je '60.   (MIRA 13:6)
                        (Concrete slabs)

LAVRENT'YEV, S. A.

"Determination of the Wedge Profile and of Normal Reactions when Clampin the Bracket", Stanki i Instrument, 10, No. 4, 1939, Engineer, Odessa Machine Tool Plant imeni Lenin

Report U-1505, 4 Oct. 1951

LAVRENT'YEV, S. A.

Cand. of Technical Sciences (-1943-)

"The Machine-Tool Plant Imeni Lenin",
Stanki I Instrument, 14, No. 4-5, 1943

BR-52059019

"Excerpts from his report:

85734

S/170/60/003/007/018/018/XX
B019/B067

11.5300

AUTHOR: Lavrent'yev, S. A.

TITLE: Approximate Solution of the Problem of Heating of a Cylinder

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 7, pp. 135 - 138

TEXT: The author attempted to obtain a simple formula for calculating the temperature on the surface and in the interior of a heated cylinder. He assumed that the heat source was regularly distributed over the lateral area of the cylinder, and did not change during heating. The front faces of the cylinder were isolated, and the physical properties of the cylinder material remained constant. In the first part, the heating of a massive

cylinder is studied. The relation $T(r, t) = \dfrac{q r_0 \sqrt{a}}{2\lambda\sqrt{\pi r r_0}} \left(F_1 + \dfrac{a}{4 r_0 r} F_2 \right.$

$\left. + \dfrac{9a^2}{32 r_0^2 r^2} F_3 + \ldots \right)$ (3) is obtained for the temperature field.

Card 1/2

85734

Approximate Solution of the Problem of   S/170/60/003/007/018/018/XX
Heating of a Cylinder   B019/B067

$F_1 = 2\sqrt{\pi t}\ i\ \text{erfc}\ (\sqrt{k/t})$, $F_2 = \frac{2}{3}(\sqrt{t^3}\ e^{-k/t} - kF_1)$, $F_3 = \frac{2}{5}(t^5\ e^{-k/t} - \sqrt{k^5}\ F_2)$,
$k = (r_0 - r)^2/4a$. This series is discussed for various special cases. In
the second part, a short-termed heating of a hollow cylinder (without
heat exchange) on the inner and outer surfaces is studied.

$T(z,\ t) = \frac{2qh}{\lambda}\sqrt{Fo}\left(\text{ierfc}\frac{z}{2h\sqrt{Fo}} + \text{ierfc}\frac{2h - z}{2h\sqrt{Fo}} + \text{ierfc}\frac{2h + z}{2h\sqrt{Fo}}\right)$ (12) is obtained
as approximate solution for the temperature field. This approximate
solution is also discussed in detail. There are 1 figure and 1 Soviet
reference.

ASSOCIATION: NIITsYeMMASh, Kuybyshev

Card 2/2

LAVRENT'YEV, S.D., inzh.; POSYADA, Yu.N., inzh.

Foamed slag concrete for reinforced elements. Bet.i zhel.-bet.
8 no.9:411-414 S '62. (MIRA 15:12)
(Lightweight concrete—Testing)

LAVRENTEV, S.S. (Moscow).

A. IA. Modestov. (5th anniversary of his death). Fiz.v shkole 7 no.3:
86-87 '53.   (MLRA 6:11)
                    (Modestov, Aleksei IAkovlevich, 1873-1942)

LAVRENT'YEV, S.S., dotsent, kandidat fiziko-matematicheskikh nauk.

Direct current magnetic fields. Nauch.trudy MZPI no.2:3-16 '55.

(MLRA 9:3)

(Magnetic fields)

67/23

24.2200   SOV/155-59-1-30/30

24(3)

AUTHORS: Remizov, A.N., and Lavrent'yev, S.S.

TITLE: The Influence of the Magnitude of Test Pieces to the Per-
              manent Magnetic Tenacity of Iron Materials (Hewing Type of
              the Magnetic Tenacity)

PERIODICAL: Nauchnyy doklady vysshey shkoly. Fiziko-matematicheskiye nauki,
                                               1959, Nr 1, pp 188-193 (USSR)

ABSTRACT: This is a report on an experimental investigation of the in-
              fluence of the magnitude of the test pieces to the following
              parameters of magneitc tenacity :
              1. The amplitude characteristic of the magnetic tenacity
                 according to $\overline{Ref\ 5\_}$;
              2. Coefficient B of the empirical formula

              $$I_t = I_2 \left(1 - \frac{1}{Bt + 1}\right)$$

              of $\overline{Ref\ 5\_}$.

              The results of the investigation are represented graphically.
              Thin test pieces show a greater magnetic tenacity. The course

Card 1/2

67/23

SOV/155-59-1-30/30

The Influence of the Magnitude of Test Pieces to the Permanent Magnetic
Tenacity of Iron Materials (Hewing Type of the Magnetic Tenacity)

of the amplitude characteristic in dependence of the length
of the test piece in essential is linear. The coefficient B
lies in the region between 0.06 and 0.14 sec $^{-1}$ and decreases
with the diameter ; for thick test pieces linear, for thin
test pieces hyperbolic dependence on the length of the test
piece.

B.A. Vvedenskiy is mentioned in the paper. The author thanks
Professor R.V. Telesnin for discussions.
There are 5 figures, and 5 references, 3 of which are Soviet,
1 French, and 1 English.

ASSOCIATION: Moskovskiy zaochnyy poligraficheskiy institut (Moscow Polygraphic
Correspondence Institute)

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Card 2/2

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AUTHORS: Lavrent'yev, S.S., Remizov, A.N.

TITLE: On analytical expression of time dependence of magnetic viscosity

PERIODICAL: Referativnyy zhurnal. Fizika, no. 9, 1961, 232, abstract 9E438 ("Sb.
            tr. Mosk. zaochn. ppligr. in-t", 1959, no. 7, 249 - 260)

TEXT: The authors present new formulae which describe well magnetic vis-
cosity

$$I = I_\infty \left(1 - \frac{1}{Bt + 1} \right)$$

in the case of a sudden switching-on of a magnetic field and

$$I = I_0 \cdot \frac{1}{Bt + 1}$$

in the case of a sudden switching-off of a magnetic field. Here I_0 is the ini-
tial value of viscous magnetization, B is a coefficient constant for a certain
specimen under definite outer conditions; I_∞ is equilibrium value of viscous
magnetization, t is time. The mentioned formulae agree well with experimental
dependence of magnetization on time which was measured by the authors on various

Card 1/2